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Portable health monitoring kit using photoplethysmogram signal (Article)

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Abstract

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This study investigates the feasibility of photoplethysmogram (PPG) signals in monitoring health condition and designing a portable health monitoring kit which is suitable for home use. The aim of this study is to ease people in monitoring their health continuously without the need to go to the hospital which can save a lot of time. The focus of this study is to find heart rate and blood pressure recording. The type of PPG sensor used in this project is a non-invasive PPG which measures the blood volume changes in any part of the body. A total of 16 subjects consisting of male and female with age range of 20 to 60 years old were involved in this research. The heart rate and blood pressure for each subject were acquired and analyzed. Based on the result, it shows that higher heart rate reading is associated with female and younger age groups. Meanwhile, for blood pressure value, male subjects tend to have higher blood pressure as compared to female subjects. However, there is no specific pattern for blood pressure in terms of the age group. In the case of HRV analysis based on Kubios software, the SDNN value is higher for male and older age subjects. Meanwhile, the RMSSD value is lower for male and older age subjects. Therefore, PPG signal has the capability to monitor the health status of an individual, which acts as an alternative biological signal for the existing health monitoring systems. © 2019 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

Blood pressure Heart rate Portable health monitoring PPG

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